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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,605	03/17/2004	Philip Korn	ATT 2003-0076	4972
26652	7590	09/14/2006	EXAMINER	
AT&T CORP. ROOM 2A207 ONE AT&T WAY BEDMINSTER, NJ 07921			VY, HUNG T	
			ART UNIT	PAPER NUMBER
			2163	

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/802,605

Applicant(s)

KORN ET AL.

Examiner

Hung T. Vy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/17/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/17/2004</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### **Information Disclosure Statement**

1. The information disclosure statement (IDS) submitted on 03/17/2004. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### **Specification**

2. The specification has been checked to the extent necessary to determine the presence of possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-22 are rejected under 35 U.S.C. 101 because the claims are directed to a non-statutory subject matter, specifically, the claims are not directed towards the final result that is "useful, tangible and concrete".

(See State Street, 149 F.3d at 1373-74 USPQ2d at 1601-02).

According to the New Guidelines of October 26, 2005, which states that "A claim limited to a machine or manufacture, which has a practical application, is statutory. In most cases a claim to a specific machine or manufacture will have a practical application. See Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557)... a specific machine to produce a useful, concrete, and tangible result and State Street, 149 F.3d at 1373-74

USPQ2d at 1601-02).

(Interim Guidelines for Examination of Patent Applications for Patent Subject Matter

Eligibility

<[http://rs6.net/tn.jsp?t=mdmd7pbab.0.kbg76pbab.p9qiiibab.7440&p=http%3A%2F%2Fwww.uspto.gov%2Fweb%2Foffices%2Fpac%2Fdapp%2Fopla%2Fpreognotice%2Fguidelines101\\_20051026.pdf](http://rs6.net/tn.jsp?t=mdmd7pbab.0.kbg76pbab.p9qiiibab.7440&p=http%3A%2F%2Fwww.uspto.gov%2Fweb%2Foffices%2Fpac%2Fdapp%2Fopla%2Fpreognotice%2Fguidelines101_20051026.pdf)> )

As in claims 1, 9, and 15, *a method of processing a data stream* does not produce a useful, concrete and tangible result as set forth in 2106 (IV)(B)(2)(b)(ii), e.g., *a set of hierarchical heavy hitter nodes among said nodes being greater than or equal to a fraction of the number of elements in said set of elements* is not a useful, concrete and tangible result because the form ***processing said data structure*** and what is the final result and useful are still unknown if *a set of hierarchical heavy hitter nodes among said nodes being less than to a fraction of the number of elements in said set of elements*. Appending to an output join list if those condition a, b, c, d above of the potential descendant list and potential ancestor list are not being available for use in the method of query path pattern matching.

Examiner requests Applicant to include in Applicant's claimed limitations (in all the claims) the following:

What is the practical application?

What is the result?

What is final result that is concrete, useful and tangible?

Because the "practical application, result, concrete, useful and tangible"

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limitations are not claimed in Applicant's claims, Examiner believes that the above listed claims are nonstatutory.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Respect to claims 1, 9 and 15, line 3-4, the clause "a data structure", "set of element" render the claim(s) indefinite because it is not clear what are a data structure and set of element. Is that a data structure of stream and set of element of said data stream.

Respect to claims 1, 9 and 15, line 3-4, the clause "frequency data" renders the claim(s) indefinite because it is not clear what is frequency data. Is that a radio frequency or the number of occurrences relative to the total number of elements in the set.

Respect to claims 1, 9 and 15, the clause "*a set of hierarchical heavy hitter nodes among said nodes being greater than or equal to a fraction of the number of elements in said of elements*" renders the claim(s) indefinite because it is unclear what happen if *a set of hierarchical heavy hitter nodes among said nodes being less than to a fraction of the number of elements in said of element*.

Respect to claims 1, 9 and 15, the last phrase renders the claim(s) indefinite because it is not clear that a) *a set of hierarchical heavy hitter nodes among said nodes being greater than or equal to a fraction of the number of elements in said of elements* or b) *said frequency data of each of said hierarchical heavy hitter nodes being greater than or equal to a fraction of the number of elements in said of elements* or c) *after discounting any portion therefore attribute to a descendant hierarchical heavy hitter node in said set of hierarchical heavy hitter nodes being greater than or equal to a fraction of the number of elements in said of elements*.

Respect to claims 1, 9 and 15 ,line 3-4, the clause "a fraction of the number of elements in said set of elements" renders the claim(s) indefinite because it is not clear how a fraction defines. The claims recite " a set of elements" that means the claims recite one set of element so is that a fraction equals to the number of elements ?.

Claims 2-8, 10-14 and 16-22 depend from rejected claims 1, 9 and 15 thereby render these dependent claims indefinite.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1-4, 6-12, 15- 18, and 20-22 are rejected under 35 U. S. C. § 102 (a) as being anticipated by Michael Greenwald et al., "Space-Efficient Online Computation of

Quantile Summaries", Proceedings of the 2001 ACM SIGMOD International Conference on Management of Data, Santa Barbara, California.

With respect to claims 1-2, 9-10 and 15-16, with best understood, Greenwald et al. discloses a method of processing a data stream, comprising: receiving a set of elements of said data stream; storing a data structure in a memory (see section 1.1, second paragraph), said data structure configured to represent said set of elements as a hierarchy of nodes (see section 2.1, last paragraph), each of said nodes having frequency data associated with one of: an element in said set of elements or a prefix of an element in said set of elements (see section 2, first paragraph); and processing said data structure to identify a set of hierarchical heavy hitter nodes among said nodes, said frequency data of each of said hierarchical heavy hitter nodes, after discounting any portion thereof attributed to a descendant hierarchical heavy hitter node in said set of hierarchical heavy hitter nodes, being greater than or equal to a fraction of the number of elements in said set of elements (see section 2.3, second paragraph).

With respect to claims 3-4 , 11-12 and 17-18, with best understood, Greenwald et al. discloses incrementing said frequency data of at least one node in said hierarchy of nodes (see section 2.2.2, first paragraph), compressing said trie data structure by deleting one or more node in said hierarchy of node where said frequency data thereof is less than a predefined threshold (see section 2.2.2, second paragraph).

With respect to claims 6-8, and 20-22 with best understood, Greenwald et al. discloses a plurality of subsets (see section 2.1, last paragraph), each of the plurality of

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subsets being associated with one or more elements in said set of elements and associating a counter with each of said plurality of subsets (see section 2.3).

7. Claims 1-4, 6-12, 15- 18, and 20-22 are rejected under 35 U. S. C. § 102 (a) as being anticipated by Manku, et al., "Approximate Frequency ", Proc. 28 th VLDB conference, Hong Kong, China, 2002.

With respect to claims 1-2, 9-10 and 15-16, with best understood, Manku et al. discloses a method of processing a data stream, comprising: receiving a set of elements of said data stream; storing a data structure in a memory (see section 2.3), said data structure configured to represent said set of elements as a hierarchy of nodes (see section 5.2), each of said nodes having frequency data associated with one of: an element in said set of elements or a prefix of an element in said set of elements (see section 5.2); and processing said data structure to identify a set of hierarchical heavy hitter nodes among said nodes, said frequency data of each of said hierarchical heavy hitter nodes, after discounting any portion thereof attributed to a descendant hierarchical heavy hitter node in said set of hierarchical heavy hitter nodes, being greater than or equal to a fraction of the number of elements in said set of elements (see section 4.2).

With respect to claims 3-4 , 11-12 and 17-18, with best understood, Greenwald et al. discloses incrementing said frequency data of at least one node in said hierarchy of nodes (see section 4.2), compressing said trie data structure by deleting one or more node in said hierarchy of node where said frequency data thereof is less than a predefined threshold (see section 5.5).



With respect to claims 6-8, and 20-22 with best understood, Greenwald et al. discloses a plurality of subsets (see section 2.3), each of the plurality of subsets being associated with one or more elements in said set of elements and associating a counter with each of said plurality of subsets (see section 2.1 or 4.4).

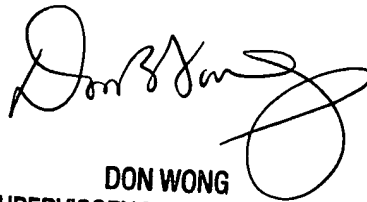
#### Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung T. Vy whose telephone number is 571-272'1954. The examiner can normally be reached on 8.30am - 5.30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571 272 1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hung T. Vy  
Art Unit 2163  
September 6, 2006.

  
DON WONG  
SUPERVISORY PATENT EXAMINER  
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